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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/626,149	07/24/2003	Gerald R. Stanley	11336/513 (P03087US)	9305
27879	7590	02/27/2006	EXAMINER	
INDIANAPOLIS OFFICE 27879 BRINKS HOFER GILSON & LIONE ONE INDIANA SQUARE, SUITE 1600 INDIANAPOLIS, IN 46204-2033			HAN, YOUNGHUIE JESSICA	
			ART UNIT	PAPER NUMBER
			2838	

DATE MAILED: 02/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/626,149

Applicant(s)

STANLEY, GERALD R.

Examiner

Y. J. Han

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 31 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-39 and 47-55 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-39 and 47-55 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 10/31/05.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. It is noted that the name of the author of A10 reference cited in the IDS should read Lai et al., instead of Lang et al.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-6, 19-22, 25-37, 47-52, 54, and 55 are rejected under 35 U.S.C. 102(b) as being anticipated by Lai et al (A10 reference disclosed in the IDS).

Lai et al discloses a power factor correcting power supply comprising: a first boost converter (Sa1, Da1, C1/Sa2, Da1, C2) that includes a first boost sub-circuit (Sa1, Da1, C1) coupled with a second boost sub-circuit (Sa2, Da1, C2); a second boost converter (Sa3, Da3, C3/Sa4, Da4, C4) coupled in series with the first boost converter, where the second boost converter includes a third boost sub-circuit (Sa3, Da3, C3) coupled with a fourth boost sub-circuit (Sa4, Da4, C4), where the first and second boost converters are configured to receive an input voltage (Vs) and supply a boost voltage (Fig. 1); and a power factor correction controller coupled with the first and second boost converters, where the power factor correction controller is configured to control the first and second boost converters with interleave as a function of the boost voltage (Table 1 shows the interleaved phasing such that switching duty of each switch is sequentially phased within a switching cycle); wherein the first and second boost sub-circuits are

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coupled in series and the third and fourth boost sub-circuits are coupled in series (Fig. 1 shows that all circuits are connected in series); wherein the power factor correction controller is configured to control the first and second boost converters with interleave of at least four (Table 1 shows interleave of at least four); wherein the each of the first, second, third and fourth boost sub-circuits include a boost switch (Sa1, Sa2, Sa3, Sa4), the boost switch of each of the first, second, third and fourth boost sub-circuits coupled in series and configured to be coupled in parallel with an input voltage; wherein each of the first, second, third and fourth boost sub-circuits include a respective boost switch (Sa1, Sa2, Sa3, Sa4) and a respective boost capacitor (C1, C2, C3, C4), the respective boost capacitor being chargeable by the respective boost switch to a portion of the boost voltage; wherein the first boost converter includes a first boost capacitor (C1) and the second boost converter includes a second boost capacitor (C2), the first and second boost sub-circuits configured to charge the first boost capacitor to a portion of the boost voltage and the third and fourth boost sub-circuits configured to charge the second boost capacitor to a portion of the boost voltage.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 7-18, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lai et al in view of Guerrero (5,923,152 – disclosed in IDS filed on 11/15/04).

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Lai et al discloses the invention substantially as claimed but does not disclose boost switches which are independently switchable. Guerrero teaches clearly that the use of independently controlled switches (40, 46, 80, and 88 in Fig. 5) for obtaining the desired output voltage in the power factor correction circuit is well known in the art. Therefore, it would have been obvious to one having ordinary skill in the art to employ independently controlled switches in Lai et al, as taught by Guerrero, to obtain the claimed invention for the purpose of achieving highly efficient converter that minimizes harmonics and EMI problems.

6. Claims 24, 38, 39, and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lai et al in view of Pinson (4,172,277).

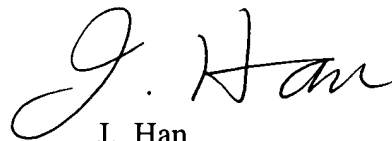
Lai et al discloses the invention substantially as claimed but does not disclose transformer having galvanic isolation. Pinson, however, clearly teaches that the use of transformer for providing galvanic isolation between the input and output of the power supply is well known in the art. Therefore, it would have been obvious to one having ordinary skill in the art to employ such transformer in Lai et al, as modified by Pinson, to obtain the claimed invention for the purpose of minimizing the switching noise of converters.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Y. J. Han whose telephone number is 571-272-2078. The examiner can normally be reached on Mon-Fri 6:30am-3:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Karl Easthom can be reached on 571-272-1989. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "J. Han". The signature is fluid and cursive, with the first letter "J" being large and stylized.

J. Han  
Primary Examiner  
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